

IMPLEMENTATION OF ELECTRONIC MUSCLES IN A PORTABLE COMPUTER
AS USER INPUT/OUTPUT DEVICES

ABSTRACT OF THE INVENTION

5 A portable computer system contained within a housing that comprises
an electronic muscle material for performing a plurality of functions. The
electronic muscle can be used to replace buttons or keys used in many PDAs.
The movement of the electronic muscle material can charge the battery. When
10 handled, the electronic muscle material can further detect the left- or right-
handedness of the user and, based on the handedness, can generate function
buttons or other alterations to accommodate the user's hand preference and
finger placement. The electronic muscle can change shape to accommodate
the user's hand for comfort and, further, as a security function to identify and
15 authorize the user. Additionally, the electronic muscle material in the housing
can be caused to vibrate at given frequencies so that it can generate an alarm
and can function as a speaker or a dynamically directional microphone.